

CLAIMS:

1. A color conversion cell (10, 30, 81, 82) for adjusting a color or color temperature of light from a light source (4) having a first emission spectrum (71, 101), the color conversion cell comprising a color converting substance (18, 111) in a matrix (16, 92) held between two electrodes (12, 13), the color converting substance having a second
5 emission spectrum (61, 62, 72, 102, 132) different from the first emission spectrum, the color conversion cell being shiftable between at least a first state wherein the color converting substance will
 - absorb a first ratio, A_1 , of light incident on the cell,
 - emit light with the second emission spectrum, and
 - 10 - transmit a second ratio, T_1 , of light incident on the cell,and a second state wherein the first ratio, A_2 , is smaller than in the first state and wherein the second ratio, T_2 , is larger than in the first state.
2. The color conversion cell according to claim 1, wherein the color converting
15 substance comprises anisometric color converting particles (21, 22, 24, 25, 26) having a high absorption orientation and a low absorption orientation in relation to light incident on the cell, the color conversion cell further comprising means (12, 13, 19) for, when the cell is in the first state, orienting the anisometric color converting particles at least substantially in their high absorption orientation relative to the source light illuminating the cell, and for,
20 when the cell is in the second state, orienting the anisometric color converting particles at least substantially in their low absorption orientation relative to the source light illuminating the cell.
3. The color conversion cell according to claim 2, wherein the means for
25 orienting comprises a liquid crystal material (32, 34) and wherein the anisometric color converting substance is mixed with liquid crystals (93) to provide a controllable orientation of the anisometric particles.

4. The color conversion cell according to claim 2, wherein the means for orienting comprises a suspended particle device and wherein the anisometric color converting particles are suspended in the suspended particle device to provide a controllable orientation of the anisometric particles.

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5. The color conversion cell according to claim 1, further comprising an electrowetting cell (110) with the color converting substance mixed with a liquid.

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6. The color conversion cell according to claim 1, wherein the color conversion cell is adapted to provide a longer average pathlength of the source light in the matrix containing the color converting substance inside the cell in its first state, than in its second state.

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7. The color conversion cell according to claim 6, further comprising electrically controllable scattering media such as polymer dispersed liquid crystal (93) or liquid crystal gel or chiral texture.

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8. The color conversion cell according to claim 1, further comprising a switchable reflector positioned behind the color converting substance, in a first state of the color conversion cell, the reflector at least substantially reflects source light incident on the cell, and in a second state of the color conversion cell, the reflector, at least substantially transmits source light incident on the cell.

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9. A light emitting device (2, 80) with adjustable color or color temperature comprising a light source (4) having a first emission spectrum (71, 101) and a color conversion cell (10, 30, 81, 82) positioned to be illuminated by at least part of the light from the light source, the color conversion cell comprising a color converting substance (18, 111) in a matrix (16, 92) held between two electrodes (12, 13), the color converting substance having a second emission spectrum (61, 62, 72, 102, 132) different from the first emission spectrum, the color conversion cell being shiftable between at least a first state wherein the color converting substance will

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- absorb a first ratio, A_1 , of light incident on the cell,
- emit light with the second emission spectrum, and
- transmit a second ratio, T_1 , of light incident on the cell,

and a second state wherein the first ratio, A_2 , is smaller than in the first state and wherein the second ratio, T_2 , is larger than in the first state.

10. The light emitting device according to claim 9, further comprising a reflector
5 (15) positioned between the light source and the color conversion cell, the reflector being at least substantially transparent for source light with the first frequency spectrum and at least substantially reflective for light with the second frequency spectrum emitted by the color converting substance.

10 11. The light emitting device according to claim 9 comprising multiple color conversion cells comprising different color converting substances and being arranged behind one another as seen from the light source to allow light from the light source to illuminate a succeeding cell through a preceding cell.

15 12. A method for adjusting the color or color temperature of light from a light source having a first spectrum, the method comprising the steps of
- providing a color conversion cell comprising a color converting substance in a matrix held between two electrodes,
- illuminating the matrix with the light source,
20 - absorbing at least part of the source light illuminating the matrix in/by the color converting substance,
- emitting light with a second emission spectrum from the color converting substance,
- adjusting a voltage between the two electrodes to increase or decrease the amount of source light absorbed by the color converting substance and the amount of light with a second
25 emission spectrum emitted by the color converting substance.